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10/540,526	06/24/2005	Hiroshi Arisawa	052723	5357

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EXAMINER	
JERABEK, KELLY L	

ART UNIT	PAPER NUMBER
2622	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/540,526	ARISAWA ET AL.	
	Examiner	Art Unit	
	KELLY L. JERABEK	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 July 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5 and 7-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5, 7-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 June 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 7/10/2008 have been fully considered but they are not persuasive.

Response to Remarks:

Applicant's arguments regarding claims 1, 3 and 18 (Amendment pages 10-11) state that the Kanade reference does not disclose that video image data of a moving image is synchronized for each frame of the plurality of cameras with camera parameters for each frame of each of the cameras. The Examiner respectfully disagrees. Kanade discloses a multi perspective video capture system that includes both image capturing devices (camera banks 14 that include a plurality of fixed cameras 16) (figures 1-2; page 2, paragraphs 24-27) and also includes moving pan/tilt/zoom cameras (42) that may receive viewing angle and zoom commands based on the output of control unit (24) (figure 8; page 4, paragraphs 45-46). Kanade further discloses that the multi perspective video capture system includes a calibration database (36) that determines the pose (location and orientation) of each image capturing device (14_{1-n}) with respect to a scene coordinate system and stores the image capturing device (14_{1-n}) pose information in order to form a pose calibration measurement (page 3, paragraphs

35-36). Therefore, the Examiner maintains that the Kanade reference discloses that video image data of a moving image is synchronized for each frame of a plurality of cameras (14_{1-n}, 42), with camera parameters (camera pose information such as location, orientation, zoom parameters, focus parameters) for each frame of each of the cameras (14_{1-n}, 42), and association information (calibration database 36 stores pose information of a camera that captures images in order to form a pose calibration measurement) that mutually associates the video image data of the moving image with the camera parameters (camera pose information such as location, orientation, zoom parameters, focus parameters) for each frame, are acquired; wherein the camera parameters include camera attitude information of camera pan tilt and zoom information (the camera parameters include pose location and orientation information as well as zoom control parameters) (page 3, paragraphs 35-36).

Applicant's arguments regarding claim 17 (Amendment page 12) state in rejecting the claim, the Examiner interpreted the "image generator 20" to be a "camera" which is not a reasonable interpretation consistent with the specification. The Examiner respectfully disagrees. The Examiner maintains that the cited "image generators 20" were not interpreted to be a "camera" in the rejection of claim 17. The Examiner cited the image generators (20) because the image generators (20) are used to control the disclosed cameras (14_{1-n}, 42) (page 2, paragraph 27-page 3, paragraph 37; page 4, paragraphs 45-46). Therefore, the Examiner maintains that the Kanade reference discloses all of the limitations of claim 17.

Applicant's arguments regarding claims 9 and 14 (Amendment page 13) state that the Kanade reference fails to disclose adding a "frame count" to the camera parameters of each camera. The Examiner respectfully disagrees. The term "frame count" is a broad term and the Examiner maintains that a time stamp of a frame constitutes a "frame count". Kanade discloses that the timing of each video frame captured may be labeled electronically (time stamped) (page 2, paragraph 24). Therefore, the Examiner maintains that the Kanade reference discloses adding a "frame count" to the camera parameters of each camera.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 7-8 and 14-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Kanade et al. US 2003/0076413.

Re claim 1, Kanade discloses a multi perspective video capture system (10) that acquires video information of a target object from multiple perspectives, comprising: a

plurality of cameras (14_{a-i}, 42) that are movable in three dimensions and which are capable of following the movement of a target object (page 2, paragraph 24, page 4, paragraphs 45-46). Kanade discloses that the multi perspective video capture system includes both image capturing devices (camera banks 14 that include a plurality of fixed cameras 16) (figures 1-2; page 2, paragraphs 24-27) and also includes moving pan/tilt/zoom cameras (42) that may receive viewing angle and zoom commands based on the output of control unit (24) (figure 8; page 4, paragraphs 45-46). Kanade further discloses that the multi perspective video capture system includes a calibration database (36) that determines the pose (location and orientation) of each image capturing device (14_{1-n}) with respect to a scene coordinate system and stores the image capturing device (14_{1-n}) pose information in order to form a pose calibration measurement (page 3, paragraphs 35-36). Therefore, the Kanade reference discloses that video image data of a moving image is synchronized for each frame of a plurality of cameras (14_{1-n}, 42), with camera parameters (camera pose information such as location, orientation, zoom parameters, focus parameters) for each frame of each of the cameras (14_{1-n}, 42), and association information (calibration database 36 stores pose information of a camera that captures images in order to form a pose calibration measurement) that mutually associates the video image data of the moving image with the camera parameters (camera pose information such as location, orientation, zoom parameters, focus parameters) for each frame, are acquired; wherein the camera parameters include camera attitude information of camera pan tilt and zoom information (the camera parameters include pose location and orientation information as well as

zoom control parameters) (page 3, paragraphs 35-36). The Kanade reference further discloses that video image data of the moving image of the plurality of cameras (14 $_{a-i}$, 42) is calibrated for each frame by using camera parameters (zoom control parameters and viewing angle parameters) that are associated with the association information, and information for analyzing the three-dimensional movement and attitude at each point in time of the target object is continuously obtained (page 2, paragraph 24—page 4, paragraph 43).

Re claim 2, Kanade states that the output of the cameras (14 $_{a-i}$, 42) may be digitally stored on a continuous basis in the respective video storage units (20 $_{1-n}$) and the timing of each video frame may be time-stamped with each video frame (page 2, paragraphs 24 and 27). In addition, Kanade states that the inter-image capturing device calibration device (36) stores data (such as zoom control parameters and viewing angle parameters) on the relationship between each image capturing device (14) to the scene and other image capturing devices (page 3, paragraphs 35-36). Therefore, it can be seen that Kanade discloses storing video image data and camera parameters for each frame.

Re claim 3, Kanade discloses a multi perspective video capture system (10) that acquires picture information of a target object from multiple perspectives, comprising: a plurality of cameras (14 $_{a-i}$, 42) that are movable in three dimensions for acquiring video image data of a moving image (page 2, paragraph 24, page 4, paragraphs 45-46); a

detector (control unit 24) for acquiring camera parameters of each camera (page 3, paragraphs 31 and 35-37); a synchronizer (image sequencing module) for synchronizing the plurality of cameras (14 $_{a-i}$, 42) (page 2, paragraph 24; page 4, paragraph 42); a data appending device (inter-image capturing device calibration database 36) for adding association information that makes associations between synchronized moving image video image data of each camera (14 $_{a-i}$, 42) and between moving image video image data and camera parameters (zoom control parameters and viewing angle parameters) (page 3, paragraph 32-page 4, paragraph 46); wherein the camera parameters include camera attitude information of camera pan tilt and zoom information (the camera parameters include pose location and orientation information as well as zoom control parameters) (page 3, paragraphs 35-36). Kanade further discloses a calibrator (image generators 20) for calibrating the video image data of each moving image by means of corresponding camera parameters on the basis of the association information and for obtaining information for analyzing the movement and attitude of the target object (page 4, paragraphs 42-43).

Re claim 4, Kanade further discloses a video image data storage (22 $_{1-n}$) for storing, for each frame, video image data to which the association information (video frames are time-stamped) has been added (page 2, paragraphs 24-27); and a camera parameter storage (inter-image capturing device calibration database 36) for storing camera parameters (zoom control parameters and viewing angle parameters) to which the association information has been added (page 3, paragraphs 35-36).

Re claim 5, Kanade further discloses that the association information (video frames are time-stamped) is a frame count of video image data of a moving image that is acquired from one camera of the plurality of cameras (14 $_{a-i}$, 42) (page 2, paragraph 24). The Examiner is reading the labeling of the timing of each video frame (time-stamping) as including a frame count as association information.

Re claim 7, Kanade discloses that the camera parameters include viewing angle parameters in x, y and z coordinates (page 3, paragraph 36). Thus, it can be seen that Kanada discloses that the camera parameters include two dimensional or three-dimensional position information of the camera.

Re claim 8, Kanade states that the video frames captured by the cameras (14 $_{a-i}$, 42) are time-stamped (page 2, paragraph 24). The Examiner is reading the labeling of the timing of each video frame (time-stamping) as including measurement data (measurement of time) as data that is stored for each frame.

Re claim 14, Kanade discloses a video information storage medium (system 10 includes video storage units 22) that stores picture information of a target object acquired from multiple perspectives, which stores first picture information in which a synchronization common frame count (each video frame is time stamped) has been sequentially added to video image data of each frame acquired by a plurality of cameras

(14 $_{a-i}$, 42), and second video image information in which a frame count corresponding with the video image data has been sequentially added to the camera parameters of each camera (14 $_{a-i}$, 42) (page 2, paragraphs 24, 28; page 3, paragraph 30-page 4, paragraph 42; see claim 3).

Re claim 15, Kanade further discloses that the camera parameters include camera attitude information of camera pan and tilt (viewing angle parameters) and zoom information (zoom control parameters) (page 4, paragraphs 45-46 and page 3, paragraphs 35-36).

Re claim 16, Kanade discloses that the camera parameters include viewing angle parameters in x, y and z coordinates (page 3, paragraph 36). Thus, it can be seen that Kanada discloses that the camera parameters include two dimensional or three-dimensional position information of the camera.

Re claim 17, the system (10) disclosed by Kanade includes a camera parameter correction method, comprising the steps of: acquiring an image in a plurality of rotational positions by panning and/or tilting a camera (14 $_{a-i}$, 42) (page 4, paragraphs 45-46); finding correspondence between the focal position of a camera (14 $_{a-i}$, 42) and the center position of the axis of rotation from the image; acquiring the camera parameters (viewing angle parameters and zoom control parameters) of the camera; and correcting the camera parameters on the basis of the correspondence (page 2, paragraph 27-page

4, paragraph 42) (image generators 20 are controlled to keep the point of interest the same size in all of the images captured by the cameras and are also controlled to automatically track and detect moving objects).

Re claim 18, Kanade discloses a wide-range motion capture system (10) that acquires video information of a three-dimensional target object and reproduces three-dimensional movement of the target object, wherein the three dimensional movement of the target object is followed by changing, for a plurality of cameras (14 $_{a\text{-}i}$, 42), camera parameters (viewing angle parameters and zoom control parameters) that include at least any one of the pan, tilt, and zoom of each camera (14 $_{a\text{-}i}$, 42) (page 2, paragraph 24, page, 3, paragraphs 35-36 and page 4, paragraphs 45-46), wherein video image data of a moving image is synchronized for each frame of the plurality of cameras (14 $_{a\text{-}i}$, 42). Kanade discloses that the multi perspective video capture system includes both image capturing devices (camera banks 14 that include a plurality of fixed cameras 16) (figures 1-2; page 2, paragraphs 24-27) and also includes moving pan/tilt/zoom cameras (42) that may receive viewing angle and zoom commands based on the output of control unit (24) (figure 8; page 4, paragraphs 45-46). Kanade further discloses that the multi perspective video capture system includes a calibration database (36) that determines the pose (location and orientation) of each image capturing device (14$_{1\text{-}n}$) with respect to a scene coordinate system and stores the image capturing device (14$_{1\text{-}n}$) pose information in order to form a pose calibration measurement (page 3, paragraphs 35-36). Therefore, the Kanade reference discloses that video image data of a moving

image is synchronized for each frame of a plurality of cameras (14_{1-n}, 42), with camera parameters (camera pose information such as location, orientation, zoom parameters, focus parameters) for each frame of each of the cameras (14_{1-n}, 42), and association information (calibration database 36 stores pose information of a camera that captures images in order to form a pose calibration measurement) that mutually associates the video image data of the moving image with the camera parameters (camera pose information such as location, orientation, zoom parameters, focus parameters) for each frame, are acquired; wherein the camera parameters include camera attitude information of camera pan tilt and zoom information (the camera parameters include pose location and orientation information as well as zoom control parameters) (page 3, paragraphs 35-36). Kanade further discloses that the video image data of the moving image of the plurality of cameras (14_{a-i}, 42) is calibrated for each frame by using camera parameters (zoom control parameters and viewing angle parameters) that are associated with the association information, and information for analyzing the three-dimensional movement and attitude at each point in time of the target object is continuously obtained (page 2, paragraph 24—page 4, paragraph 43).

Re claim 19, Kanade discloses that the camera parameters include viewing angle parameters in x, y and z coordinates (page 3, paragraph 36). Thus, it can be seen that Kanada discloses that the camera parameters include two dimensional or three-dimensional position information of the camera.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanade et al. US 2003/0076413.

Re claim 9, Kanade discloses a video information storage medium (system 10 includes video storage units 22) that executes system control commands to store picture information of a target object acquired from multiple perspectives. The system stores first picture information in which a synchronization common frame count (each video frame is time stamped) has been sequentially added to video image data of each frame acquired by a plurality of cameras (14 $_{a\text{-}i}$, 42), and stores second video image information in which a frame count corresponding with the video image data has been sequentially added to the camera parameters of each camera (14 $_{a\text{-}i}$, 42) (page 2, paragraphs 24, 28; page 3, paragraph 30-page 4, paragraph 42). However, although the Kanade reference discloses all of the above limitations and also discloses adding frame counts (time stamps) to video image data, it fails to specifically state that the system includes first and second program encoders for adding frame counts to the

video image data. The Examiner takes Official Notice that it is well known in the art to utilize encoders to add additional information to video image data. Therefore, it would have been obvious for one skilled in the art to have been motivated to utilize encoders to add frame counts to the video image data disclosed by Kanade. Doing so would provide a means for effectively appending the frame count information to video image data in order to identify the video image data when performing image processing techniques.

Re claims 10-11, Kanade further discloses that each frame of the video image data is stored in accordance with a frame count (video frames are time-stamped) (page 2, paragraphs 24 and 27). The Examiner is reading the labeling of the timing of each video frame (time-stamping) as adding a frame count to video image data.

Re claim 12, Kanade further discloses that the camera parameters include camera attitude information of camera pan and tilt (viewing angle parameters) and zoom information (zoom control parameters) (page 4, paragraphs 45-46 and page 3, paragraphs 35-36).

Re claim 13, Kanade discloses that the camera parameters include viewing angle parameters in x, y and z coordinates (page 3, paragraph 36). Thus, it can be seen that Kanada discloses that the camera parameters include two dimensional or three-dimensional position information of the camera.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sato et al. (US 2003/0112337) discloses an apparatus and method for controlling a camera connected to a network. The information regarding a multiple camera system that is capable of storing camera pan, tilt and zoom information is relevant material.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contacts

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kelly L. Jerabek whose telephone number is **(571) 272-7312**. The examiner can normally be reached on Monday - Friday (8:00 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc Yen Vu can be reached at **(571) 272-7320**. The fax phone number for submitting all Official communications is **(571) 273-7300**. The fax phone number for submitting informal communications such as drafts, proposed amendments, etc., may be faxed directly to the Examiner at **(571) 273-7312**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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